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Senior Consulting Civil Engineer
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Education

Ph.D. Purdue University (Civil Engineering), 1967
M.S. Oregon State University (Civil Engineering), 1963
B.S. U.S. Military Academy, 1954

Principal Areas of Research, Teaching or Consulting

Transportation Planning, Soil Mechanics, Traffic Engineering, Highway Signing/Marking, Traffic Control, Human Factors, Vehicular Accident Reconstruction and Analysis, Highway Design and Maintenance, Environmental Impact and Traffic Safety, Airport Planning and Design

Certification/Registration

1977 Registered Professional Engineer (Traffic Engineering, California #0883)
1967 Registered Civil Engineer (Arizona #6811)
1966 Registered Civil Engineer (Indiana #12,177)

Industrial and Consulting Experience

1995 Traffic/Geometrics Training Program, Arizona Department of Transportation
1992 Governor's Regional Airport Advisory Committee
1984 Board Member, Traffic Accident Reduction Program, City of Phoenix, Arizona
1983 Consultant, Transportation Engineering Program for Arizona Department of Transportation, Phoenix, Arizona
1981-1979-80 Senior Consulting Civil Engineer, BTI Consultants, Tempe, Arizona
Consultant, United States Forest Service, Land Use and Transportation Planning
1978 Board Member, Tempe Planning and Zoning Commission, Tempe, Arizona
1977 Consulting Engineers and Planners, Schimpler-Corradino Associates, Louisville, Kentucky
1976-77 Consultant, Sage Engineering, Phoenix, Arizona
1974 Consultant, Environmental Impact Study, Garrett Freightlines, Pocatello, Idaho
1972 Consultant, Pace Engineering, Phoenix, Arizona
1971-74 Consultant, Johannessen and Girard, Consulting Engineers, Phoenix, Arizona
1970-71 Consultant, E.V. Miller Engineers, International Engineering Company, Phoenix, Arizona
1962 Estimator, Bechtel Corporation, San Francisco, California
1954-61 United States Army, Corps of Engineers

Principal Professional Publications and Presentations

- "A Study of the Relationship Between Left Turn Accidents and Driver Age in Arizona," with others, Report No. AZ-SP-9603, Arizona Department of Transportation, December 1996
- "Simulator Evaluation of Green and Amber Signal Phasing," with others, Transportation Research Board, TRR No. 1550, National Academy of Sciences, November 1996
- "Improving and Maintaining Safety Through Technology Transfer," with others, 24th European Transport Forum, London, England, September 1996
- "Safety Improvement Programs for Regional Low Volume Road Systems," with others, 28th International Symposium on Automotive Technology and Automation, Stuttgart, Germany, September 1995
- "Traffic Light Change Anticipation System: An Evaluation," with others, Arizona Department of Transportation, December 1994
- "A Casual Analysis of Traffic Accidents on Urban Highways in Saudi Arabia," with others, 27th International Conference on Road and Vehicle Safety, Aachen, Germany, November 1994
- "Local Low Volume Roads and Streets," with others, American Society of Civil Engineers, Publication No. FHWA-SA-93-006, Chapter III, Traffic and Safety Design, November 1992
- "Some Traffic Parameters for the Evaluation of the Single-Point Diamond Interchange," with Mark James Poppe and A. Essam Radwan, Transportation Research Board, TRR No. 1303, National Academy of Sciences, 1991
- "Traffic Control Manual for Highway Construction and Maintenance," Arizona Department of Transportation, January 1989
- "Spacing of Raised Reflective Pavement Markers," Report No. FHWA-AZ88-836, Arizona Department of Transportation, November 1988
- "A Comparison of Arterial and Network Software Programs," with others, ITE Journal, August 1987
- "Comparison of Computer Programs for Isolated Signalized Intersections," with others, American Society of Civil Engineers, Journal of Transportation Engineering, Vol. 113, No. 4, July 1987
- "Left Turn Signal Warrants for Arizona," with J.E. Upchurch, Report No. FHWA-AZ-85-192, Arizona Department of Transportation, June 1985
- "Pedestrian Accidents in Arizona: An Investigation of Causative Factors and Recommendations for Safety Improvements," with Anne Stonex, Report No. FHWA-AZ-85-210, Arizona Department of Transportation, May 1985

Principal Professional Publications and Presentations(continued)

- "Vehicle Classification Procedure Study," with A.G. Dean, Report No. FHWA-AZ-84-195.1, Arizona Department of Transportation, June 1984
- "Evaluation of Driver Behavior at Signalized Intersections," with R.H. Wortman, Transportation Research Board, HRR No. 904, National Academy of Sciences, 1983
- "Principals of Land and Resource Management Planning," with others, Forest Service, U.S.D.A. Land Management Planning Office, Washington, D.C., U.S. Government Printing Office 1982-360-932:FS-1134, 1982
- "Transportation Planning for National Forests," with R.H. Wortman, Transportation Research Board, HRR No. 812, National Academy of Sciences, 1980
- "Highway Funding: Arizona Case Study," with R.H. Wortman, Transportation Research Board, HRR No. 742, National Academy of Sciences, 1980
- "A Study of Cyclist Behavior at Signalized Intersections," with P.J. Chao and M.R. Anderson, Transportation Research Board, National Academy of Sciences, Washington, D.C., January 1979
- "An Evaluation of the Safety Effectiveness of the 55 MPH Speed Limit," with R.H. Wortman, Transportation Research Board, National Academy of Sciences, Washington D.C., January 1979
- "Arizona Highways, The Ways and Means for Financing," with R.H. Wortman, Research Report for the Arizona Legislature, 1979
- "A Comparison of Two Types of Left Turn Channelization," with J.C. Chang and M.R. Anderson, Transportation Research Board, TRR No. 644, National Academy of Sciences, 1978
- "Development of a Bicycle Accident Rate in Arizona," with R.G. Perrault and M.R. Anderson, Transportation Research Board, TRR No. 629, National Academy of Sciences, 1978
- "An Analysis of the Relationships Between Accidents and the 55 MPH Maximum Speed Limit on the Arizona Highway System," with others, Transportation Research Board, TRR No. 609, National Academy of Sciences, 1977
- "Relationship of the Highway Center-Line Stripe Color to the Accident Rate in Arizona," with Richard Johns, Transportation Research Board, TRR No. 613, National Academy of Sciences, 1977
- "The Problems of Transportation: People and Products," with others, The Arizona Academy, Phoenix, Arizona, 1974
- "AMES - Air Medical Evacuation and Surveillance System," with E.M. Wilson,

Principal Professional Publications and Presentations(continued)

Highway Research Board, 53rd Annual Meeting, TRR No. 498, National Research Council, Washington, D.C., 1974

"Investigation to Determine the Capacity of Protected Left-Turn Movements," with Ronald R. Johnsen, HRR No. 453, Washington, D.C., 1973

"Recreational Travel Demand Models," with W.L. Grecco and D.C. Robinson, 11th International Study Week in Traffic Engineering & Safety, Brussels, Belgium, September 1972

"Air Medical Evacuation System," Final Report: Contract No. FH-11-7096, U.S. Department of Transportation, National Highway Safety Bureau, Washington, D.C., June 1970

Membership in Professional Societies

American Society of Civil Engineers (Life Member)
Institute of Transportation Engineers (Fellow, Life Member)
American Society of Professional Engineers (Member)
Arizona Society of Professional Engineers (Member)

Professional Society Activities

American Society of Civil Engineers: Chairman, Air Landings Facilities Committee (1981-83), Traffic and Highway Safety Committee (1982-Present)
Arizona Society of Professional Engineers, Papago Chapter, President (1976)
Transportation Research Board, National Academy of Sciences: Committees, Traffic Law Enforcement, Traffic Records, Traffic Safety Committee
Valley Forward Transportation Committee
Planning and Zoning Commission, City of Tempe, Arizona
Institute of Transportation Engineers:
Committee to Revise State Drivers License Manual
Bicycle Laws Technical Committee
Driver Behavior at Right Turn on Red Locations
Task Force on Tort Liability Case Feedback to Operating Agencies and Safety and the Institute's Program
Safety Council Executive Board
Expert Witness Council

Awards, Scholarships and Honor Societies

Chi Epsilon (Civil Engineering Honorary Society)
Professional Engineer of the Year in Education (1986), Arizona Society of Professional Engineers
Sigma Xi (Research Honorary Society)
FHWA Grant in Traffic Engineering and Safety Program
FHWA Grant for Highway Safety Program
Technical Council Award (1974), Institute of Transportation Engineers

Academic Experience

1981-98	Arizona State University, Professor
1971-81	Arizona State University, Associate Professor
1967-71	Arizona State University, Assistant Professor
1964-67	Purdue University, Instructor
1962-64	Oregon State University, Instructor
1962	Oregon State University, Teaching Assistant